

WHAT IS CLAIMED IS:

1 1. In a color projection-type television display having digital
2 convergence correction data, a method for producing a convergence correction signal
3 comprising:
4 reading out convergence correction data stored in a memory;
5 supplying said convergence correction data to a first circuit operable to
6 produce an analog signal from said convergence correction data; and
7 producing said convergence correction signal based on said analog signal,
8 wherein a data rate at which said convergence correction data is supplied to
9 said first circuit varies.

2 2. The method of claim 1 wherein said reading out said convergence
3 correction data is performed with a varying data rate so that said convergence correction data
4 is supplied to said first circuit at a varying data rate.

5 3. The method of claim 1 wherein said reading out said convergence
6 correction data includes producing addresses to access said memory, said addresses being
7 produced at a varying rate so that said convergence correction data is supplied to said first
8 circuit at a varying data rate.

9 4. The method of claim 1 wherein a memory location spacing between
1 said convergence correction data which correspond to an edge region of a display range of a
2 horizontal scan line is less than a memory location spacing between convergence correction
3 data corresponding to a central portion of said display range.

4 5. The method of claim 1 wherein said producing is a step of filtering
5 said analog signal with a low-pass filter component to produce said convergence correction
6 signal, said filtering including altering at least one filter parameter value of said low-pass
7 filter component.

8 6. The method of claim 5 wherein altering at least one filter parameter
9 value of said low-pass filter component is dependent on locations on said display
1 corresponding to said convergence correction data.

1 7. A color projection-type display system having a convergence
2 correction signal generation component comprising:
3 an analog signal generator for producing said convergence correction signal,
4 said analog signal generator having an input portion for receiving digital convergence
5 correction data; and
6 a memory coupled to supply digital data to said analog signal generator,
7 said memory configured with convergence correction data, said convergence
8 correction data comprising first data corresponding to correction points along a horizontal
9 scan line,
10 said correction points being unevenly distributed along said horizontal scan
11 line, wherein correction points proximate an edge portion of said horizontal scan line have
12 smaller separation than corrections points in a central portion of said horizontal scan line.

13 8. The convergence correction signal component of claim 7 wherein said
14 analog signal generator includes a low-pass filter for producing said convergence correction
15 signal and a filter parameter selection circuit for selectively adjusting a parameter of said
16 low-pass filter depending on said convergence correction data.

17 9. A color projection-type television system including a convergence
18 correction signal generating apparatus for correcting convergence in a display area of said
19 television system, said convergence correction signal generating apparatus comprising:
20 a memory configured with convergence correction data;
21 an address generation circuit operatively coupled to said memory to access
22 said convergence correction data; and
23 an analog signal generation circuit coupled to said memory to receive said
24 convergence correction data from said memory and operable to produce said convergence
25 correction signal from said convergence correction data,
26 said convergence correction data corresponding to correction points along a
27 horizontal scan line, wherein separation between correction points located in a central portion
28 of said display area is greater than separation between correction points located in an edge
29 portion of said display area.

30 10. The apparatus of claim 9 wherein said convergence correction data is
31 stored in said memory such that a first pair of adjacent convergence correction data is

3 separated by zero or more empty memory locations and a second pair of adjacent
4 convergence correction data is separated by zero or more empty memory locations, said first
5 pair of adjacent convergence correction data have a memory location spacing different from
6 said second pair of adjacent convergence correction data.

1 11. A color projection-type television display including a convergence
2 correction signal generating apparatus for correcting convergence in a display area of said
3 display, said convergence correction signal generating apparatus comprising:

4 a memory configured with convergence correction data;
5 an address generation circuit operatively coupled to said memory to access
6 said convergence correction data; and

7 an analog signal generation circuit coupled to said memory to receive said
8 convergence correction data from said memory and operable to produce convergence
9 correction signals from said convergence correction data,

10 said convergence correction data being stored in said memory in ordered
11 fashion corresponding to a horizontal scanning order,

12 said convergence correction data being stored in said memory such that a first
13 pair of adjacent convergence correction data is separated by zero or more empty memory
14 locations and a second pair of adjacent convergence correction data is separated by zero or
15 more empty memory locations, said first pair of adjacent convergence correction data have a
16 memory location spacing different from said second pair of adjacent convergence correction
17 data.

1 12. The apparatus of claim 11 wherein pairs of adjacent convergence
2 correction data have smaller separation for those convergence correction data corresponding
3 to an edge portion of said display area than for those convergence correction data
4 corresponding to a central portion of said display area.

1 13. The apparatus of claim 11 wherein said analog signal generation circuit
2 includes a low pass filter component, said low pass filter component having at least one filter
3 parameter value selectable from among a plurality of filter parameter values, said filter
4 parameter value being selected based on locations of said display area corresponding to said
5 convergence correction data received by said analog signal generation circuit.

1 14. The apparatus of claim 13 wherein said at least one filter parameter
2 value is a time constant of said low pass filter component.

1 15. The color projection-type television display of claim 11 as
2 incorporated in a color projection-type television system.

1 16. A display device for use in a color projection-type television, a
2 convergence correction signal generating apparatus for correcting convergence in a display
3 area of said display device comprising:

4 a memory configured with convergence correction data;
5 an address generation circuit operatively coupled to said memory to access
6 said convergence correction data; and

7 an analog signal generation circuit coupled to receive said convergence
8 correction data from said memory and operable to generate convergence correction signals
9 based on said convergence correction data,

10 said address generation circuit configured to generate an address at a variable
11 rate so that said analog signal generation circuit receives said convergence correction data at
12 a data rate that varies.

13 17. The apparatus of claim 16 wherein said rate of address generation is
14 higher for convergence correction data corresponding to an edge region of a display of said
15 projection-type television than for convergence correction data corresponding to a center
16 region of said display.

1 18. The apparatus of claim 16 wherein said analog signal generation circuit
2 includes a low pass filter component, said low pass filter component having at least one filter
3 parameter value selectable from among a plurality of filter parameter values.

1 19. The apparatus of claim 18 wherein said at least one filter parameter
2 value is a time constant of said low pass filter component.

1 20. The apparatus of claim 18 wherein one of said filter parameter values
2 is selected based on locations of said display area corresponding to said convergence
3 correction data received by said analog signal generation circuit.

1 21. The apparatus of claim 16 wherein said analog signal generation circuit
2 comprises:

3 a digital-to-analog converter configured to receive said convergence correction
4 data to produce a first analog signal;

5 a low-pass filter circuit coupled to said digital-to-analog converter to produce
6 a second analog signal from said first analog signal;

7 current amplifier circuit coupled to said low-pass filter to produce a third
8 analog signal from said second analog signal; and

9 a convergence yoke coupled to said current amplifier to receive said third
10 analog signal to control scanning of an electron beam in accordance with said third analog
11 signal.

12 22. A color projection-type television comprising:

13 a color display apparatus;

14 circuitry having an input to receive a television signal and having an output
15 coupled to deliver a video signal to said color display apparatus, said video signal produced
16 from said television signal; and

17 a convergence correction signal generating apparatus having an output to
18 deliver convergence correction signals to said color display apparatus to correct convergence
in a display area of said color display,

9 said convergence correction signal generating apparatus comprising:

10 a memory configured with convergence correction data;

11 an address generation circuit operatively coupled to said memory to
12 access said convergence correction data; and

13 an analog signal generation circuit coupled to receive said convergence
14 correction data from said memory and operable to generate said convergence correction
15 signals based on said convergence correction data,

16 said address generation circuit configured to generate an address at a
17 variable rate so that said analog signal generation circuit receives said convergence correction
18 data at a data rate that varies.

1 23. The color projection-type television of claim 22 wherein said circuitry
2 includes a tuner portion for receiving said television signal and a video processing portion for
3 producing said video signal from said television signal.

1 24. A convergence correction circuit adapted for use in a color display
2 device, said convergence correction circuit producing a convergence correction signal to
3 correct convergence on a display area of said color display device, said convergence
4 correction circuit comprising:

5 first means for generating a convergence correction signal based on digital
6 data;

7 second means for storing a plurality of digital convergence correction data,
8 said second means operatively coupled to said first means to supply said plurality of digital
9 convergence correction data to said first means; and

10 third means operatively coupled to said second means for outputting said
11 plurality of digital convergence correction data from said second means at a variable data
12 rate, wherein said first means is supplied with said digital convergence data at said variable
13 data rate.

14 25. The circuit of claim 24 wherein first means includes means for filtering
15 an analog signal and means for varying a filter parameter value of said means for filtering
16 based on locations of said display area corresponding to said digital convergence correction
17 data supplied to said first means.

18 26. The circuit of claim 24 wherein some of said digital convergence
19 correction data is stored in non-contiguous storage locations in said second means, so that
20 adjacent digital convergence correction data have memory location spacings of zero or more
21 empty storage locations.

22 27. The circuit of claim 24 wherein said third means includes means for
23 generating storage location information, wherein said storage location information is supplied
24 to said second means to output said digital convergence correction data, said storage location
25 information being generated at a varying rate so that said digital convergence correction data
is outputted at a variable data rate.